

U.S. Application No.: NEW  
PRELIMINARY AMENDMENT

Attorney Docket: 3926.144

**IN THE SPECIFICATION:**

Please add the following paragraph after the title:

Cross Reference To Related Application

[0001] This application is a ***national stage*** of PCT/EP2003/009607 filed August 29, 2003 and based upon DE 102 42 709.7 filed September 13, 2002 and upon DE 102 54 695.9 filed November 23, 2002 under the International Convention.

Please replace paragraph [0008] with the following amended paragraph:

[0008] The object is achieved according to the invention by the features of claim 1.

Please replace paragraph [00015] with the following amended paragraph:

[00015] Particular advantages can be achieved if the cold-forming method used for shaping the part geometry to near net shape is a (multistage) deep-drawing method ~~(see claim 2)~~. Since multistage formability of the part blank is possible in the soft state, complex part geometries can also be shaped. Cutting tools are advantageously provided in the last stage of the deep-drawing tool, so that the trimming of the part blank is effected directly in the cold-forming tool.

Please replace paragraph [00016] with the following amended

paragraph:

[00016] Mechanical cutting means are preferably used for trimming the part blank ~~(see claim 3)~~. These cutting means may be integrated in the cold-forming tool in the form of edging and/or punching tools, so that the trimming of the margins is not effected in a separate method step but as part of the cold forming ~~(see claim 4)~~.

Please replace paragraph [00017] with the following amended paragraph:

[00017] In order to be able to further reduce the cycle time of the entire process, it is advantageous to design the process step of the press hardening of the trimmed part blank to be as brief as possible in order to ensure as high a throughput of parts as possible per hot-forming tool. To this end, the finish-shaped part should be cooled down as rapidly as possible. In an advantageous embodiment, the finish-shaped part is quenched in a tool which is cooled by means of a brine (at a temperature of  $< 0^{\circ}\text{C}$ ) as cooling medium ~~(see claim 5)~~; such a brine has especially high thermal conductivity and thermal capacity. In this way, especially rapid cooling of the part can be achieved.

Please replace paragraph [00019] with the following amended paragraph:

[00019] In an advantageous configuration, a semifinished product made of an air-hardened steel is used for producing the part ~~(see claim 6)~~. An advantage of air-hardened steels consists in

the fact that, in principle, no additional cooling (e.g. by the hot-forming tool) is necessary for the quenching of the part. In this case, the part blank is shaped to net shape in the hot-forming tool and then cooled in the hot-forming tool only until sufficient thermal stability, rigidity and associated dimensional accuracy of the part are achieved. The part can then be removed from the hot-forming tool and be finally cooled in the air; the hot-forming tool is thus available for receiving a further part blank. In this way, the cycle times during the production of hardened parts can be further reduced. If the air hardening is effected under an inert gas, this results in the further advantage, in addition to this gain in time, that no scale forms on the part and thus the complicated subsequent descaling is dispensed with ~~(see claim 7)~~.

Please replace paragraph [00020] with the following amended paragraph:

[00020] During such heating and heat treatment under inert gas, the part remains free of surface contaminants and can therefore be advantageously subjected to a surface coating directly following the hot forming and quenching (i.e. after cooling down to a temperature below the martensite temperature) ~~(see claim 8)~~. In the course of this surface coating, in particular corrosion-inhibiting protective coatings (e.g. by galvanizing) can be applied to the surface of the part. In this case, the residual heat originating from the hot forming and remaining in the part can be directly utilized. Further heat treatment of the

part by tempering can then be effected.

Please replace paragraph [00021] with the following amended paragraph:

[00021] The heating of the trimmed part blank before the hot forming may be effected in a continuous furnace ~~(see claim 9)~~. Alternatively, the heating is carried out inductively ~~(see claim 10)~~. Such inductive heating is effected very quickly, for which reason an additional gain in the total process time can be achieved in this case. Furthermore, on account of the short heating duration, only negligible scaling of the surfaces of the part occurs during the heating, for which reason the use of inert gas can be dispensed with. The inductive heating has special advantages in those applications in which it is not the entire part but only selected regions of the part that are to be press-hardened: in this case, by suitable configuration of the inductors, only the regions to be hardened are selectively heated and then hardened in the hot-forming tool, whereas the remaining, unheated regions, although formed in the hot-forming tool, remain in the original ductility. Alternatively, or additionally, the induction heating enables the properties of the part to be set over the sheet thickness ("soft core - hard outer layer"). In this way, locally variable strength and rigidity properties can be achieved on the finished part.